selecting at least one nucleic acid molecule from a first group of predefined nucleic acid molecules (N1-n), wherein each of the predefined nucleic acid molecules comprises an identification sequence section (IDS1-n),

contacting the substance (S1-n) with at least one predefined nucleic acid molecule (N1-n),

providing a second group of nucleic acid molecules (N'1-n), wherein each nucleic acid molecule of the second group of nucleic acid molecules comprises a detection sequence section (IDP1-n) complementary to one of the identification sequence sections (IDS1-n),

contacting the substance (S1-n) with the nucleic acid molecules (N'1-n) provided from the second group under predefined hybridization conditions; and

detecting hybridization.

2. The method as claimed in claim 1, wherein the identification sequence section (IDS1-n) is located between two primer binding sequence sections (PBS1, PBS2).

3. (Amended) The method as claimed in claim 2, wherein said identification sequence section (IDS1-n) comprises two identification sequence sections (IDS-A, IDS-B).

4. (Amended) The method as claimed in claim 3, wherein the identification sequence sections (IDS-A, IDS-B) are complementary to one another.

5. (Amended) The method as claimed in claim 2, wherein the primer binding sequence sections (PBS1, PBS2) have the same melting point.

6. (Amended) The method as claimed in claim 1, wherein the nucleic acid molecules (N1-n) are amplified.

7. (Amended) The method as claimed in claim 1, wherein the predefined nucleic acid molecules (N1-n) are linked on at least one end to an agent which counteracts degradation caused by exonuclease.

8. (Amended) The method as claimed in claim 1, wherein the predefined nucleic acid molecule (N1-n) is provided with a coupling group (A, B, C, D-Z).

9. (Amended) The method as claimed in claim 8, wherein the coupling group (A, B, C, D-Z) is selected from the group consisting of: a biotin group, an amino group, a thiol group, and a hapten.

10. (Amended) The method as claimed in claim 1, wherein a molecule carrying a fluorophoric group (F11-n) is bound to the predefined nucleic acid molecule (N1-n).

11. (Amended) The method as claimed in claim 8, wherein the coupling group (A, B, C, D-Z) is labeled with a fluorophoric group.

12. (Amended) The method as claimed in claim 1 wherein the predefined nucleic acid molecules (N1-n) are bound to the substance (S1-n) and wherein the substance (S1-n) is selected from the group consisting of antibodies, lectins, receptors, nucleotide sequences, PNA sequences, peptides, proteins, sugars, and ligands.

13. (Amended) The method as claimed in claim1, wherein the predefined nucleic acid molecules (N1-n) are bound to particles (P) or are included therein.

14. (Amended) The method as claimed in claim 13, wherein the particles (P) are from 30 nm to 3 mm in size.

15. (Amended) The method as claimed in claim 13, wherein the particles (P) are silica, polystyrene, polyvinyl chloride, polyethylene, nylon or glass milk particles.

16. (Amended) The method as claimed in claim 13, wherein the particles (P) are selected from the group consisting of a viral capsid and a virus-like particle.

17. (Amended) The method as claimed in claim 1, wherein each of the second group of nucleic acid molecules (N'1-n) is bound to a predefined site on a solid surface.

18. (Amended) The method as claimed in claim 1, wherein hybridization of an identification sequence section (IDS1-n) with a complementary detection sequence section (IDP1-n) is detected by means of fluorescence.

19. (Amended) The method as claimed in claim 1, wherein at least two predefined nucleic acid molecules (N1-n) are added to the substance (S1-n) as a label.

20. (Amended) The method as claimed in claim 1, wherein the predefined nucleic acid molecules (N1-n) and/or the second group of nucleic acid molecules (N'1-n) are prepared synthetically.

21. (Amended) The method as claimed in claim 1, wherein the first group of predefined nucleic acid molecules (N1-n) and the second group of nucleic acid molecules (N'1-n) comprise nucleic acid analogs.

Please add the following new claims:.

22. The method as claimed in claim 21, wherein the nucleic acid analogs are selected from the group consisting of PTO and PNA.

23. The method of claim 17, wherein the solid surface is selected from the group consisting of a chip, a microtiter plate, and film.

24. The method of claim 6, wherein said amplification is by PCR.

25. The method of claim 24, wherein said PCR uses fluorescently-labelled primers.

26. The method of claim 3, wherein said identification sequence sections (IDS-A, IDS-B) comprise primer binding sequence sections (PBS1, PBS2).

27. A method for identifying solid, liquid and gaseous substances (S1-n), said substance having been labeled with at least one nucleic acid molecule selected from a first group of predefined nucleic acid molecules (N1-n), wherein each of the predefined nucleic acid molecules comprises an identification sequence section (IDS1-n), comprising the steps of:

providing a second group of nucleic acid molecules (N'1-n), wherein each of the nucleic acid molecules of the second group of nucleic acid molecules comprises a detection sequence section (IDP1-n) complementary to one of the identification sequence sections (IDS1-n),

contacting the substance (S1-n) with the nucleic acid molecules (N'1-n) provided from the second group under predefined hybridization conditions; and

detecting hybridization.

28. A solid, liquid or gaseous substance (S1-n) marked with at least one nucleic acid molecule from a first group of predefined nucleic acid molecules (N1-n), wherein the article or substance has been marked by:

providing the article or substance to be marked with at least one nucleic acid molecule from a first group of predefined nucleic acid molecules (N1-n),

wherein each of the predefined nucleic acid molecules comprises an identification sequence section (IDS1-n),

wherein for identification of the predefined nucleic acid molecule, there is provided a second group of nucleic acid molecules (N'1-n), wherein each of the second group of nucleic acid molecules comprises a detection sequence section (IDP1-n) complementary to one of the identification sequence sections (IDS1-n).